

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 March 2004 (04.03.2004)

PCT

(10) International Publication Number
WO 2004/018530 A1

(51) International Patent Classification⁷: C08F 10/00, 4/64

(21) International Application Number:
PCT/GB2003/003565

(22) International Filing Date: 14 August 2003 (14.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02358018.6 20 August 2002 (20.08.2002) EP
02358019.4 20 August 2002 (20.08.2002) EP

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- of inventorship (Rule 4.17(iv)) for US only

(71) Applicant (*for all designated States except US*): BP CHEMICALS LIMITED [GB/GB]; Britannic House, 1 Finsbury Circus, London EC2M 7BA (GB).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): JACOBSEN, Grant, Berent [GB/FR]; 343 Chemin du Petit Nice, F-13320 Bouc Bel Air (FR). KIMBERLEY, Brian, Stephen [GB/FR]; 1116, rue Camille Saint Saens, F-13320 Bouc-Bel-Air, Bouche Du Rhone (FR). MASTROIANNI, Sergio [FR/FR]; 33, avenue des Esperelles, Appartement 203, F-13500 Martigues (FR). TAYLOR, Michael, John [GB/GB]; 85 Maryland Way, Sunbury-on-Thames, Middlesex TW16 6HP (GB). GARCIA, Eliane [FR/FR]; 3, rue des Bourdigues, F-13500 Martigues (FR). LACANE, Gerard [FR/FR]; 10, rue de Figueras, F-13700 Marignane (FR).

(74) Agent: HAWKINS, David, George; BP International Limited, Chertsey Road, Sunbury-on-Thames, Middlesex TW16 7LN (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SUPPORTED POLYMERISATION CATALYSTS

(57) Abstract: A novel process for the preparation of a supported transition metal catalyst system said method comprises the steps of: (i) mixing together in a suitable solvent (a) an organometallic compound, and (b) an ionic activator comprising a cation and an anion, (ii) addition of the mixture from step (i) to a support material, and (iii) addition of a transition metal compound in a suitable solvent, characterised in that the molar ratio of organometallic compound (a) to ionic activator (b) in step (i) is in the range 0.1 to 2.0. By use of the reduced molar ratio of the organometallic compound to the ionic activator in step (i) better reproducibility of the catalyst may be achieved as well as higher activities. In addition polymer properties may be improved for example higher melt strength resulting in better product performance. The preferred transition metal compounds are metallocenes.